

Amendment Under 37 C.F.R. § 1.116
USSN 09/611,230
Attorney Docket Q59991
December 10, 2003

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1-11. (Canceled) without prejudice or disclaimer

12. (Currently Amended) A communication and control system in combination with a railway train which comprises at least one main engine and a plurality of carriages or wagons,

the communication and control system comprising

first and second bi-directional transmission lines which extend parallel to and spaced from one another along the train;

a main control unit installed on said at least one main engine and connected, in said at least one main engine, to both said transmission lines and to brake control systems or devices of the train;

a plurality of slave control units each of which is installed upon a respective carriage or wagon and is connected, in the respective carriage or wagon, to both said transmission lines, to solenoid valve units associated with pneumatic brake ~~actuators~~ cylinders for controlling the solenoid valve units and to sensor devices associated with the respective carriage or wagon;

the main control unit and the slave control units being arranged to communicate with one another via said transmission lines according to a predetermined serial protocol;

the main control unit being arranged to transmit to the slave control units serial brake control signals, and to receive and acquire serial information or status signals from said slave control units via at least one of said transmission lines.

13. (Previously Presented) The system according to Claim 12 further comprising at least one auxiliary engine;

said at least one auxiliary engine being also provided with a control unit capable of acting as a slave control unit connected to said transmission lines and arranged to receive synchronization signals coming from the control unit of the at least one main engine and to transmit additional information or status signals to the main control unit of the at least one main engine via at least one of said transmission lines.

14. (Previously Presented) The system according to Claim 12, wherein the main control unit is arranged to transmit brake control signals to the slave control units via one of said transmission lines and to receive information signals coming from said slave control units via the other of said transmission lines.

15. (Previously Presented) The system according to Claim 12, wherein the main control unit is arranged to detect and determine the location along the train of a position of a failure of one of said transmission lines.

16. (Previously Presented) The system according to Claim 15, wherein the main control unit is arranged, in case of a failure of one of said transmission lines, to transmit at least the brake control signals and possible synchronization signals for one or more auxiliary engines on the other of said transmission lines.

17. (Currently Amended) The system according to Claim 12, wherein the slave control units are arranged to acquire and transmit brake control or information signals on ~~one or the~~ either the first or second transmission line equally, and are moreover operable, when the slave control units receive a brake control signal on said ~~one first~~ first transmission line, to transfer to the ~~other~~ second transmission line brake control or information signals received on said ~~one first~~ first line; the main control unit being arranged to detect a condition in which said transmission lines are both interrupted, each between different pairs of slave control units, and provide a transfer command signal to send brake control signals to at least two slave control units from among those in which there is an interruption of one of said transmission lines, in such a way that all the slave control units are able to communicate with the main control unit via a provisional transmission line comprising portions of both said transmission lines and the slave control units which have been sent said brake control signals.

18. (Previously Presented) The system according to Claim 17, wherein said transmission lines are further connected to electrical power supply devices which can be activated in at least one engine to distribute power to the slave control unit.

19. (Previously Presented) The system according to Claim 17, wherein the slave control units are arranged to allow the passage of electrical power from one transmission line to the other which are connected, when the slave control units receive said transfer command signal, in such a way that when both said transmission lines are interrupted, each between different pairs of slave control units, all said slave control units can be supplied with electrical power propagated through said provisional transmission line.

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20. (Currently Amended) The system according to Claim 12, wherein said transmission lines are ~~travelling~~traveling wave twin wire lines operable to transmit electrical power and serial type signals simultaneously.

21. (Previously Presented) The system according to Claim 12, wherein the system operates in trains comprising a plurality of carriages or wagons provided with a single transmission line.

22. (Previously Presented) The system according to claim 18, wherein the slave control units are arranged to allow the passage of electrical power from one transmission line to the other which are connected, when the slave control units receive said transfer command signal, in such a way that when both said transmission lines are interrupted, each between different pairs of slave control units, all said slave control units can be supplied with electrical power propagated through a provisional transmission line.